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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/987,674

11/15/2001

Dennis W. Davis

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06/16/2005

Roylance, Abrams, Berdo & Goodman, L.L.P.
Suite 600
1300 19th Street
Washington, DC 20036

EXAMINER

PHAN, HANH

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,674

Applicant(s)

DAVIS ET AL.

Examiner

Hanh Phan

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/19/02, 06/06/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 6, 7, 10, 12, 14, 16, 19, 20, 23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Glynn (US Patent No. 5,680,240).

Regarding claims 1 and 14, referring to Figure 3, Glynn discloses a system for testing a wireless network of transceivers, comprising:

an optical modulator (i.e., SLM array 101 and laser 105, Fig. 3) adapted to modulate optical energy (i.e., laser 105) with signal energy (i.e., input signals from antenna 100, Fig. 3) propagating from a first group of the transceivers of the network to form a vector of optical signals;

an optical matrix-vector multiplier (MVM) (i.e., SLM array 106, SLM array 110 and SLM array 114, Fig. 3) adapted to receive the vector of optical signals, and having a matrix of optical channel weights which are modifiable in accordance with desired parameters to represent at least one parameter of the wireless network, the optical MVM (i.e., SLM array 106, SLM array 110 and SLM array 114, Fig. 3) being further adapted to output signals based on the received vector of optical signals and the optical channel weights; and

a detector device (i.e., detector array 117, Fig. 3) adapted to detect the output signals and to provide the output signals as an output vector of signals to a second group of transceivers of the network (see col. 5, lines 5-62).

Regarding claims 3 and 16, Glynn further teaches the signal energy includes radio frequency (RF) signal energy and said output signals include RF signals (Fig. 2c, col. 4, lines 57-67).

Regarding claims 6 and 19, Glynn further teaches the optical modulator includes a plurality of optical detectors, each adapted to receive respective the signal energy from a respective one of the transceivers in the first group (Fig. 3).

Regarding claims 7 and 20, Glynn further teaches the detector device includes a plurality of detectors, each adapted to receive a respective the output signal (Fig. 3).

Regarding claims 10 and 23, Glynn teaches further comprising: a first lens system (i.e., lens 102, Fig. 3) adapted to direct the vector of optical signals onto the optical MVM.

Regarding claims 12 and 25, Glynn teaches further comprising: a second lens system (i.e., lens 116, Fig. 3) adapted to direct the output signals from the optical MVM onto the detector device.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glynn (US Patent No. 5,680,240) in view of Sampsell et al (US Patent No. 5,037,173).

Regarding claims 2 and 15, Glynn teaches all the aspects of the claimed invention except fails to teach the detector device includes an amplifier device adapted to amplify the output signals to create the output vector of signals. However, Sampsell in US Patent No. 5,037,173 teaches the detector device (i.e., digital receiver, Fig. 2) includes an amplifier device (i.e., low noise amplifier, Fig. 2) adapted to amplify the output signals to create the output vector of signals (Figs. 1b and 2, col. 4, lines 19-43). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the detector device includes an amplifier device as taught by Sampsell in the system of Glynn. One of ordinary skill in the art would have been motivated to do this since Sampsell suggests in column 4, lines 19-43 that using such the detector device includes an amplifier device have advantage of allowing amplifying the power level of signal to a desired level.

5. Claims 4, 5, 11, 13, 17, 18, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glynn (US Patent No. 5,680,240) in view of Bryon (US Patent No. 4,633,428).

Regarding claims 4 and 17, Glynn teaches all the aspects of the claimed invention except fails to teach the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths, to enable full duplex

communication simulation of the network. However, Bryon in US Patent No. 4,633,428 teaches the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths to enable full duplex communication simulation of the network (Figs. 1, 2, 4a and 4b, col. 4, lines 17-67 and col. 5, lines 1-20). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths to enable full duplex communication simulation of the network as taught by Bryon in the system of Glynn. One of ordinary skill in the art would have been motivated to do this since Bryon suggests in column 4, lines 17-67 and col. 5, lines 1-20 that using such the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths have advantage of allowing reducing the interference between the signals.

Regarding claims 5 and 18, the combination of Glynn and Bryon teaches the matrix of optical channel weights is replicated in order to provide a reciprocal transmission path between each the transceiver of the network, and to increase the dimension of the input and output vectors to represent transceivers for the reciprocal transmission paths, to enable full duplex communication simulation of the network (Fig. 3 of Glynn and Figs. 1, 2, 4a and 4b of Bryon).

Regarding claims 11 and 24, the combination of Glynn and Bryon teaches the first lens system is adapted to direct each respective component of the vector of optical signals onto a respective row of the optical channel weights of said optical MVM (Fig. 3 of Glynn and Figs. 1, 2, 4a and 4b of Bryon).

Regarding claims 13 and 26, the combination of Glynn and Bryon teaches the second lens system is adapted to direct the output signals from rows of the optical channel weights of the optical MVM onto a row of detectors of the detector device (Fig. 3 of Glynn and Figs. 1, 2, 4a and 4b of Bryon).

6. Claims 8, 9, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glynn (US Patent No. 5,680,240) in view of Riza (US Patent No. 5,512,907).

Regarding claims 8 and 21, Glynn teaches all the aspects of the claimed invention except fails to teach a delay device, adapted to impose respective delays on each of the output signals before the output signals are received by the detector device. However, Riza in US Patent No. 5,512,907 teaches a delay device adapted to impose respective delays on each of the output signals before the output signals are received by the detector device (Fig. 2, col. 3, lines 46-67 and col. 4, lines 1-52). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the delay device adapted to impose respective delays on each of the output signals before the output signals are received the detector device as taught by Riza in the system of Glynn. One of ordinary skill in the art would have been motivated to do this since Riza suggests in column 3, lines 46-67 and col. 4, lines 1-42 that using such the delay device adapted to impose respective delays on each of the output signals before the output signals are received by the detector device has advantage of allowing reducing the crosstalk between the signals.

Regarding claims 9 and 22, the combination of Glynn and Riza teaches the delay device includes an array of delay devices, each configured to impose a respective delay on a respective one of the output signals (Fig. 2 of Riza).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



**HANH PHAN
PRIMARY EXAMINER**